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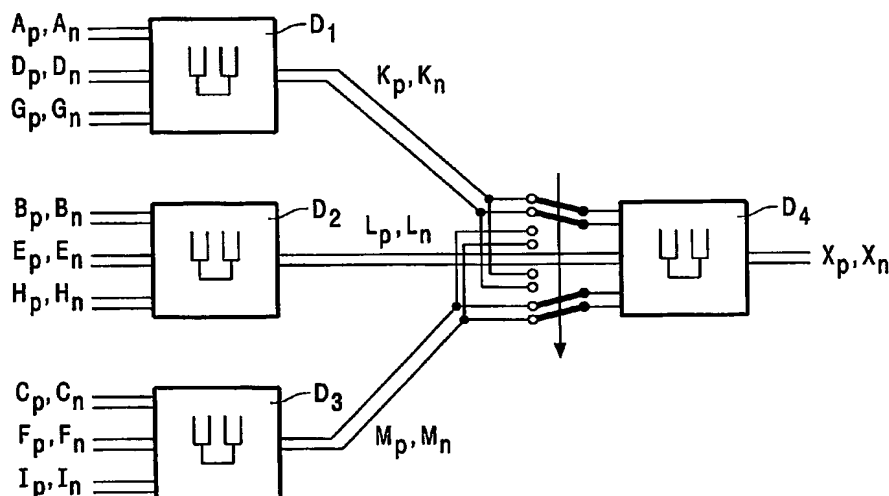
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[Continued on next page]

(54) Title: **CROSS-COUPLED FOLDING CIRCUIT AND ANALOG-TO-DIGITAL CONVERTER PROVIDED WITH SUCH A FOLDING CIRCUIT**



(57) Abstract: A cross coupled folding circuit comprises a reference voltage circuit to supply m reference voltages, an amplifier circuit to provide control signals, in response to an input signal and to the reference voltages and  $2^n - 1$  three times cross coupled folding circuits, each of which comprising three differential transistor pairs, said differential transistors pairs being controlled by said control signals and active in a voltage range around a respective one of said reference voltages, with  $m = 3(2^n - 1)$ . In cascade with said  $2^n - 1$  folding circuits, there are differential transistor pairs in n-1 successive steps  $2^{n-1}, 2^{n-2}, \dots, 2^0$ . To obtain complete folding, switching circuits are provided, cooperating with the transistor pairs in the last  $2^n - 2$  steps of the cascade configuration, to supply the respective control signals to those transistors of the respective differential transistor pairs that provide complete folding.

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